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June 21, 1988

Agricultural Research Service
United States Department of Agriculture

1986

Edward F. Knipling

1987

Howard L. Bachrach

Myron K. Brakke

Glenn W. Burton

Wilson A. Reeves

Ernest R. Sears

Orville A. Vogel

Cecil H. Wadleigh

The Agricultural Research Service Science Hall of Fame

The ARS Science Hall of Fame was inaugurated in 1986. We determined that each succeeding year, one or more present or former scientists with the Agricultural Research Service could be selected, subject to the following criteria:

- The selectee's research must have contributed significantly to the solution of a major agricultural problem and reflect credit on the Agricultural Research Service.
- The selectee is recognized nationally and internationally by his or her peers in the scientific community.
- The selectee's character and record of achievement is worthy of emulation by younger agricultural scientists.
- The selectee must be either retired or eligible to retire and must continue to be professionally active.

Today we honor several outstanding scientists by inducting them into the Science Hall of Fame. A plaque citing the achievements of each will be on permanent display in the new ARS National Visitor Center, scheduled for formal opening in 1988 at the Beltsville Agricultural Research Center.

A handwritten signature in dark ink, reading "R. D. Plowman". The signature is fluid and cursive, with the first letters of the first and last names being capitalized and prominent.

R. D. Plowman
Administrator

June 21, 1988



Francis E. Clark

Microbiologist (retired)
Soil-Plant-Nutrient Research
Fort Collins, Colorado

For outstanding research leading to greater understanding of soil, plant, and microbial interactions and of nutrient cycling in terrestrial ecosystems.

Francis E. Clark's career-long study of the relationships of soil, plants, and microorganisms helped determine how microorganisms affect nutrient cycling in plants and soil.

Especially noteworthy were his contributions concerning the cycling of ^{15}N within plants and soil in terrestrial systems. He defined soil factors affecting formation and stability of nitrite in soil and the role of past cropping history and soil organic matter in controlling losses of applied nitrogen. His description of constituents and linkages in soil humus led to a better understanding of how humus changes the physical properties of soils and how it affects movement of soil pollutants.

He pioneered in establishing the role of antibiosis in soils and its use in the control of soilborne plant diseases. His involvement with root-rotting organisms led to extensive studies on the microflora of the rhizosphere and rhizoplane.

He published taxonomic treatments of the aerobic, sporulating bacilli and of the soil corynebacteria. He discovered immunologic relationships of putrefactive and pathogenic anaerobic bacilli and defined the field ecology of the aerogenic bacterium responsible for the dust byssinosis disease in humans.

Dr. Clark is a fellow of the Soil Science Society of America and the American Society of Agronomy. He retired from ARS in 1976 after 40 years of service, but he is still collaborating on research with ARS colleagues, publishing papers on soil microbiology and nutrient cycling. He continues some teaching at Colorado State University and is the regional editor of an international science journal. He is currently writing a textbook on soil microbiology and biochemistry. In addition to many other national and international activities connected with his research, Dr. Clark continues operation of his mountain ranch.



Edgar E. Hartwig
Research Agronomist
Soybean Production Research
Stoneville, Mississippi

For research in soybean breeding and genetics that has been a major factor in soybeans becoming the second most valuable U.S. crop and particularly for developing cultivars that thrive in the South.

Edgar E. Hartwig bred the soybeans that helped transform this plant from one of many forages to the second most valuable U.S. crop. From 1953 to the present, soybean acreage in the South increased from 2.5 million acres to 17.5 million, and average yields doubled to 24 bushels per acre; 90 percent of Southern soybean acreage is planted with cultivars bred by Dr. Hartwig.

An ARS employee since 1949, Dr. Hartwig released his first important cultivar, Lee, in 1954; it became the South's leading soybean. He has developed soybeans with resistance to root knot nematode. Use of Forrest, a soybean Dr. Hartwig developed for resistance to soybean cyst nematode, reduced losses in yield by an average of \$80 million a year.

Under Dr. Hartwig's leadership, researchers came to recognize a high level of antibiosis in soybean genotypes against several foliage-feeding insects and have bred soybeans to take advantage of this resistance.

During the early years of his career, Dr. Hartwig developed or influenced several important soybean production and management practices such as timing of planting and weed and tillage technology.

In 1985 the American Society of Agronomy bestowed on Dr. Hartwig its Agronomic Achievement Award, one of many honors recognizing his accomplishments over the years.

Still breeding improved soybeans in ARS laboratories, Dr. Hartwig also chairs or serves on various soybean advisory committees, is an Adjunct Distinguished Professor of Agronomy at Mississippi State University and curator of the national germplasm collection for southern soybeans, and coordinates cooperative testing of soybean varieties at some 50 locations in the South.



Ralph E. Hodgson

National Program Staff Scientist (retired)

Dairy Production

Beltsville, Maryland

For significant contributions to the knowledge of ruminant nutrition and for visionary leadership, both domestic and international, in the animal industries.

In 16 years as a research scientist, Ralph Edward Hodgson contributed significantly to the understanding of production and use of pasture and forages; in 27 years as a research administrator, he was instrumental in modernizing and expanding ARS livestock research.

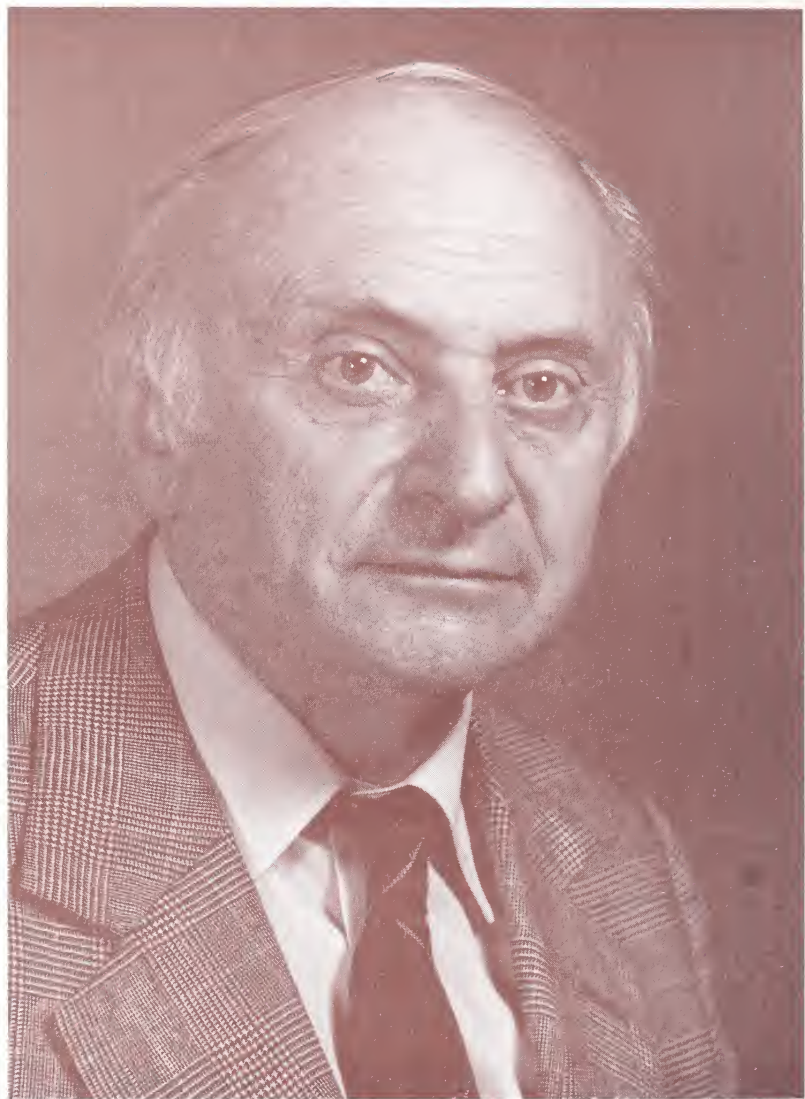
He obtained funds to establish the Beltsville Energy Metabolism Laboratory, dedicated to advancing knowledge on net energy values of feeds. Today this laboratory is still the only one of its kind in the United States and is still devoted to finding out how ruminant feeds are used.

Throughout his career, Dr. Hodgson worked closely with farmers and with farmers' organizations. He was instrumental in establishing the U.S. Meat Animal Research Center in Clay Center, Nebraska. And he perceived the need for and promoted the concept of a dairy cattle forage research center. As a result, the U.S. Dairy Forage Research Center was established at Madison, Wisconsin.

An enthusiastic proponent of performance-testing programs and artificial insemination for genetic improvement of farm animals, Dr. Hodgson provided leadership in the advancement of the National Dairy Herd Improvement Program.

Dr. Hodgson is a fellow of the American Association for the Advancement of Science and of the American Society of Animal Science and has received many honors, including the Distinguished Service Award from the American Dairy Science Association in 1971.

Retired from ARS in 1973 after 43 years of service, Dr. Hodgson has since been active in the International Livestock Center for Africa, which has its headquarters in Ethiopia.



Hamish N. Munro

Senior Scientist

Human Nutrition Research Center at Tufts

Boston, Massachusetts

For career-long contributions to the science of nutrition, particularly on the relationship of dietary protein and iron to the health of the elderly, and for promotion of studies on aging.

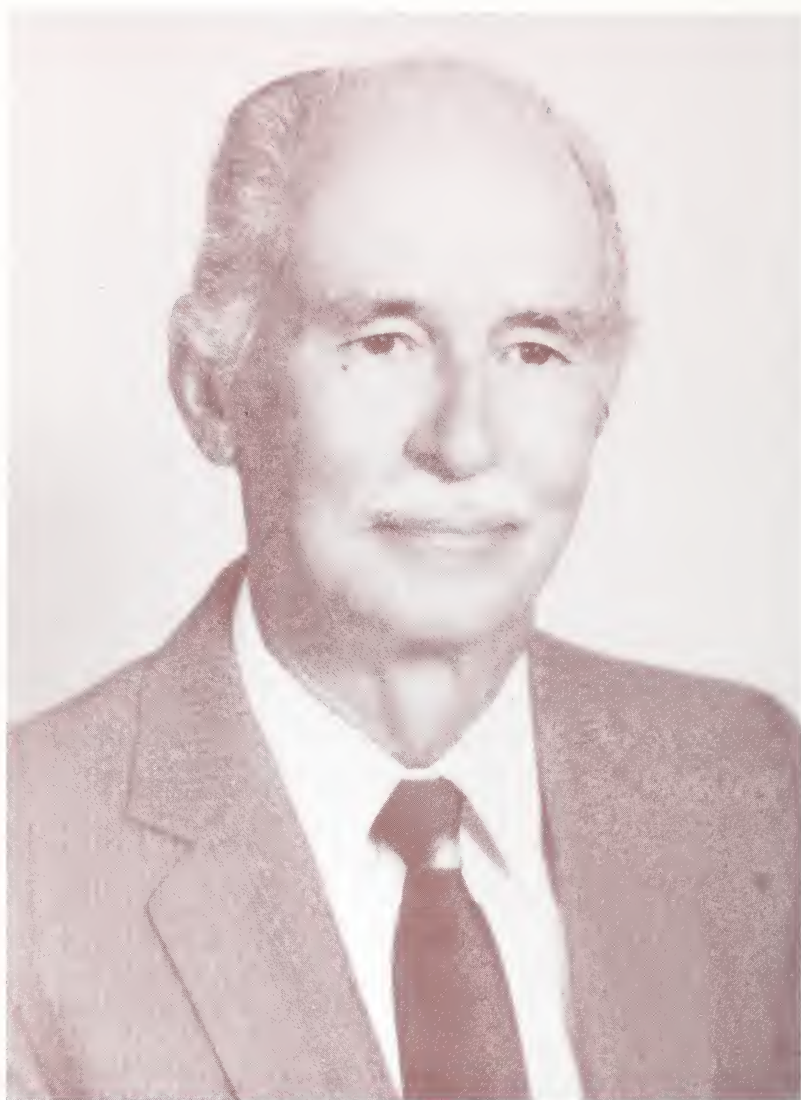
Hamish N. Munro produced the first persuasive evidence of the importance of level of energy intake in the body's use of dietary protein. He showed that elderly humans have a reduced synthesis of blood protein albumin when protein intake is raised and less capacity to utilize dietary protein. To make study of blood plasma protein synthesis easier, Dr. Munro devised a new procedure using isotopically labeled sugars; this procedure provided a means to study how dietary factors affect protein synthesis and sugar-use disorders in adults, including the elderly.

He discovered how iron regulates expression of the gene for ferritin, the iron-storage protein. In his nutrition research arising from this discovery, Dr. Munro has explored regulation of iron metabolism and storage by the ferritin gene. He is applying techniques developed from his ferritin research to determine whether aging results in less efficient control of iron entering the cells.

An ARS employee for 8 years, Dr. Munro was the first director of the ARS Human Nutrition Center on Aging at Tufts in Boston, Massachusetts, from 1979 to 1984. In that time, he developed a unique scientific facility and program aimed at improving the health of the elderly and thereby reducing the rising cost of health care.

Dr. Munro is a member of the National Academy of Sciences and a Fellow of the Royal Society (Edinburgh). His numerous honors include the 1982 Rank Prize for Nutrition.

Dr. Munro stepped down as director of the ARS Human Nutrition Research Center on Aging to devote his energies to directing the work of several postdoctoral fellows, graduate students, and collaborating researchers at the Center and at the Massachusetts Institute of Technology.



José Vicente-Chandler

Research Leader (retired)

Soil and Water Conservation Research

Rio Piedras, Puerto Rico

For research leading to new and greatly improved production systems for beef, milk, coffee, plantains, and rice for Puerto Rico and Caribbean countries.

Jose Vicente-Chandler led a small ARS research team in the development of new and highly effective agricultural production systems designed specifically for the conditions of Puerto Rico and Caribbean countries. These systems take into account the nature and topography of the land, the climate, economics, and the people and their customs. These systems include:

- Efficient production of beef and milk on all-grass rations in steep pastures and tropical humidity. The steep Caribbean pasture land must be anchored by grasses to prevent erosion, and importing feed concentrates is prohibitively expensive. The system feeds beef and dairy cattle on grass alone and produces 1,000 pounds of beef or 7,000 pounds of milk per acre each year.
- High-density, full sunlight coffee production in the Tropics. Dr. Vicente-Chandler showed that densely packed high-yielding coffee plants could be grown in full sunlight. The coffee-production system resulting from his observations produces 5-10 times more marketable coffee per acre than do commonly used tropical systems.
- Similar solutions to the problems of growing rice and plantains, making it possible for Puerto Rican farmers to grow enough of each crop to satisfy domestic needs.

During his 43-year career with ARS, Dr. Vicente-Chandler received many honors, including the U.S. Department of Agriculture Distinguished Service Award in 1979. He is a fellow of the American Society of Agronomy.

Since his retirement in 1986, Dr. Vicente-Chandler has remained active as a consultant with the agency, as a leader in the ARS Caribbean Basin Initiative Training Program begun in 1986, and as a manager of his own commercial farm in Puerto Rico.

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